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Deadly Virus Home Defense

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Why? We'll obviously seek professional medical care if we can get it. But in a pandemic (widely contagious disease on global scale--known on national scale as an epidemic) that may not be possible. The USA may have a great medical system today (arguable from many perspectives…), but clearly many emergency rooms are overwhelmed right now, and hospital isolation rooms may be great but there are very few of them. As with the Black Plague in Europe and the Spanish flu of 1918--which killed an estimated 500,000+ Americans (incl over 30,000 U.S. military troops)--my guess is that much--if not the nationwide majority--of infection, treatment, and death from the next pandemic in our country could happen in the family home, with no professional medics available to help. It's a matter of sudden huge scale (the essence of a pandemic). Thus this little plan. Every family will make its own decisions in its own home. We're not doctors, and we don't live in a hospital. No doctor is going to write a *Tamiflu* antiviral prescription for us now, in the absence of a currently-identified flu virus threat. There is no vaccine for a flu virus not yet identified as pandemic. There is no completely-tested vaccine for Ebola hemorrhagic fever virus (named after the Ebola River in the Democratic Republic of the Congo--formerly Zaire, thus capitalized). And there's no "perfect" defense against any particular virus if it comes into our home. You do the best you can. But if we can pay $1,200/year for home insurance, we certainly can pay a hundred or two to protect ourselves just in case the federal government's over $7 billion investment in pandemic flu and Ebola preparedness turns out to be right. It could mean life or death. In our home, that's serious business.

Supplies

(sources: any local medical supply store has the medically-related items)

Item	**Cost** *(as of 2009 when I did pandemic flu planning)*
• Respirator: N95 "positive facial lock"	$ 45.00 per box of 35 NIOSH-approved N95 respirators
• Mask: surgical	8.00 per box of 50 masks
• Gloves: Dermassist latex exam	5.00 per box of 100 gloves
• Gown: impervious (to liquids)	1.50 per gown (disposable; option for washable)
• Goggles: safety, plastic	3.99 per goggle
• Caviwipes disinfecting towelettes	9.00 per sealed plastic can of 160 towelettes
• Clorox or Lysol Virus-Killing Disinfectant	4.50 per can
• Bicycle-hanging hooks	2.00 at Home Depot

- Fever thermometer
- Chlorine bleach (non-scented, labeled for disinfecting--buy at Home Depot, not at a grocery store)
- Duct tape or surgical tape
- Paper plates, cups, napkins. Plastic utensils.
- Plastic garbage bags
- Regular medications, vitamins. Acetaminophen (e.g., Tylenol) and aspirin (e.g., Ibuprofen, Motrin) for fever & headache, Phenergan (prescription) for nausea.
- Food and water, esp salt, sugar, baking soda
- Manual can opener
- Flashlights, batteries, portable radio, candles, matches/lighters
- Tissues, toilet paper, paper towels, disposable diapers for babies

Notes on supplies:

- M3G. Medics call the first 5 items above "m3g," being the basics to work around patients with an infection that can spread. A pandemic flu or Ebola patient will be coughing virus-laden saliva droplets into the air, most of which drop to the floor but some of which will float in the air. You'll read, for some reason, that Ebola isn't airborne--but you'll also read that (1) Ebola virus is carried by bodily fluids including saliva, (2) that medics are always wearing masks and full-suit coverage around Ebola patients, and (3) that doctors and nurses are dying from Ebola right now. Bill's conclusion: don't gamble like a dead doctor--treat Ebola as airborne when near an infected person who can cough or sneeze at any time. In a hospital, all these m3g items are worn only once then

disposed of. Not sure we're ready for that, since we can do things such as dip goggles in disinfectant solution, or microwave PPE items like masks for one minute (if they don't have metal or rubber parts) and reuse safely. OSHA's published pandemic guidance (p. 25) is quite clear that reuse in an emergency can be reasonable.

- Respirator/Mask. A plain N95 mask doesn't seal around the edges. We bought NIOSH-approved "positive facial lock" N95 respirators (looks just like a mask—look at the box label). In a hospital, around dangerously-infectious patients they use a fitted/sealed N95 respirator. For home emergency use, some professionals suggest an N95 mask with duct tape (or surgical tape) to seal edges where needed. Try to get the infected family member to wear a surgical mask (much cheaper than N-95), to greatly reduce viral spray in the sick-room. In 1918, many cities including San Francisco made wear of a mask in public mandatory by law, with unmasked people arrested. Amid a pandemic in your city, always wear an N95 respirator in public areas (est. 98% successful against airborne virus, if properly sealed, and if you don't compromise it by improper handling or putting your fingers in eyes/mouth/nose), or at least a surgical mask (est. 70% or less successful against airborne virus--not good enough but better than nothing), especially public restrooms or within 10 feet of anybody during a pandemic. Note: only two companies (with overseas plants) supply 90% of the world's N95 and surgical masks. If you don't already have them when a pandemic starts, you'll probably not have a chance to get them. When Turkey reported H5N1 just in birds, Serbia had a one-day sell-out of masks. Theft and black-market sale of masks will be normal. A wet respirator or mask doesn't work--replace it.
- Gloves. In lieu of disposable gloves, we can also wear standard Playtex Living Gloves, as used for dish-washing, and dip them in disinfectant. To dry them after, hang them on a stick stuck in the ground.
- Gowns. If we run out of disposable gowns, in an emergency we can use plastic garbage bags and duct tape. Option to buy washable gowns (use heavy bleach).
- Goggles. Put duct tape or surgical tape over the goggle vents, and over any gaps, to minimize air circulating over your eyes when close to infected people.
- Bicycle Hook. One for each family member, of squared U-shape. Saw off the threaded part. These are strong steel covered with vinyl, so they won't scratch anything and can be dipped in disinfectant. Drop in a pocket and use when away from home to open doors, push buttons, etc. without touching those things with your hands. I could get to my desk at work with this, touching nothing with hands, while going through multiple security doors that have push-button locks.
- Food. Pandemic hoarding may clean-out stores. Many truck drivers will stop driving. Many producers of food will curtail production. What we know as our daily economy can collapse. Have at least a month of food in the house. Examples: 1 pound of salt, 5 of sugar, bulk beans/rice, canned and dried foods, oatmeal, MREs (available at commissaries), juices. You can lose electricity in a pandemic, so don't depend on frozen foods.
- Water. After hearing that a pandemic is beginning to enter your city, store 2 weeks of clean drinking water in the house, in case city water stops, or if on a well like us in case electricity stops. Also store 2 weeks of water to flush toilets (filling bathtubs is easy for this). Keep one small water filter pump in the house, like campers use, to purify bad water for drinking. Our well level is 300 feet down: fishing rod and cup for emergency (some companies sell lengths of PVC pipe for this). Disinfect water by boiling hard for at least a minute. To purify a gallon of water, add 1/8 teaspoon of unscented liquid household chlorine bleach; mix well and let stand for 30 minutes before drinking. For cloudy, colored or very cold water, double the bleach. To reduce the slight bleach taste, try pouring the treated water back & forth between two clean containers several times.

Life in the House

- Security. No guests. Keep doors locked. Pandemics with high death rates usually result in civil disorder. Be careful approaching cities--preferably stay away from them.
- Heat. In case electricity goes out, and the furnace stops, think how you'll heat a room, boil water, cook food, etc. Our bedroom gets warm from the sun all winter, and we'll just sleep under thick covers at night. We keep a second back-up propane bottle for the grill, so can cook outside for a while. Then make wood cooking fires in the grill, away from the house.

- Phones and Internet. These services may become erratic, for lack of workers to keep them going. Keep both hard-wire and cell phones in the home, in case either system stops.
- TV and Radio. Expect non-stop pandemic coverage, including reporting of economic disruptions. (just bought a small wind-up combination AM-FM radio & flashlight at Walgreen's for $21).
- Newspapers, Mail, Other Deliveries. May stop.
- Cough and Sneeze. Not into hand, but into crook of the arm.
- Social Distancing. Try to stand 10 feet from all other people. Minimum 5 feet. Caring for infected person: suit-up m3g.
- Disinfectant. Lysol and Clorox sell spray disinfectant labeled "kills virus." You can make an effective alternative this way: in plastic bucket put 1/2 cup of plain *chlorine* (not "color-safe") bleach in one gallon of water (check bleach label, in case the right mix for the bleach you have is different). Keep one by the sick-room door. One by the kitchen sink. And anywhere else it might be handy. Use it to wipe-down faucet and door handles (esp. refrigerator), phones, toilet seats, etc. Remember that a virus is not a bacteria, although bacterial pneumonia on top of viral pneumonia can kill you faster (as in 1918). Antibacterials don't necessarily kill viruses. **Bleach kills both.**
- Laundry. Wash it in disinfectant solution. Dried virus probably will be on it.
- Washing Hands Correctly. Wash with soap 30 seconds. Rinse. Wash again. Rinse again. Focus between fingers, under nails, knuckle creases. Doing this thoroughly can be just as effective at removing virus as using an alcohol sanitizer.
- Alcohol Sanitizer for Hands. These (e.g. Purell), are less drying than soap & water. They must be of 70%-plus isopropyl alcohol or 60%-plus ethyl alcohol concentration to be effective. Easily and cheaply make your own with 1 teaspoon of glycerin (moisturizer, available in natural food stores) per cup of rubbing (isopropyl) alcohol (available in drug stores). In a pandemic, alcohol will sell-out quickly. Alternative: 140-proof Scotch whiskey. Warning: these alcohol items are flammable. To use effectively, make hands fully wet with the alcohol sanitizer (not just your fingertips), rub them together for at least 30 seconds, then continue rubbing until hands are dry.

Virus Transmission

- How Do You Get it? Via mouth, nose, eyes or other body opening (as with HIV). Protect them from airborne, finger-borne and object-borne virus launched by the body fluids of an infected person, and you've protected yourself from infection. No mystery here, but it requires a lot more care that most people are used to taking. Your greatest risk probably is from another family member. The last place you want to be is in the crowded waiting area of a hospital emergency room (which will be far more overwhelmed than they already are today). Even though CDC says you're unlikely to get Ebola in a casual crowd, because Ebola symptoms (and infectiousness to others) usually hit abruptly and stop the victim from moving around, I'd avoid all crowds anyway. During a pandemic that's entered my local area with significant numbers of victims, I'd wear a mask anywhere outside the home (think China), avoid touching my face, and disinfect hands (even wear disposable gloves, like many Wal-Mart cashiers do) after touching anything in public. Why get careless in public only to find that "Oops, I just got Ebola" later?
- How's it Feel? Sudden onset of fever, chills, cough, aching muscles, fatigue, weakness. Nausea is rare initially (…but can come later. "Stomach flu" usually is food poisoning--read about how chicken is processed in this country, and you'll understand why.). Or norovirus, which is common on cruise ships. Common cold usually is sniffly-sneezy-sore throat, lacking muscle aches and fever so obvious with flu or Ebola.
- Infection and Infectious People. Typical incubation period (between infection and onset of symptoms) of flu is 2-3 days. For Ebola, 2-21 days. Flu-infected people start to shed the virus during the last day of incubation *before* onset of symptoms. This means they can pass it to other people before they know they're infected--at work or at home among family members. WHO guidance says that infected adults shed the H5N1 virus for 15-17 days *after* the onset of symptoms, and we know children can shed flu virus for 21 days. CDC says Ebola victims are infectious only after symptoms begin (I take this with a grain of salt…). After exposure (not necessarily infection) to Ebola, people must be observed (e.g., temperature taken twice/day to watch for fever) for 21 days to assure safety from infection. Pandemic flu or Ebola can cause bleeding from nose/mouth/lungs/rectum as they attack your internal organs. Blue skin = life-threatening

respiratory duress. Ebola is not a "respiratory disease" like flu, but it can attack the lungs as it can attack other organs, generating the coughing of infected blood, per its "hemorrhagic fever" attributes.

- It Can Stay Infectious Outside People. Flu virus from bodily fluids stays infectious for 48 hours on solid surfaces like metal or plastic. Ebola is reportedly less contagious, but I'd treat it the same. Scientifically, viruses don't "live," in that they have no purposeful movement, do not eat or excrete, and don't replicate themselves. They require mammalian host cells to replicate, by taking over the host cell and destroying it while it makes new viruses.
- Airborne Virus. Cough by infected person produces large and small virus-laden saliva droplets. Large ones fall to floor. Small ones may float in the air and land anywhere. Conversational speech alone produces thousands of small droplets. If you don't believe this, just Google "cough photographs," and you'll be a believer.
- Infection. It happens when a virus-laden droplet lands in an eye, mouth, nose, is inhaled, is deposited in one of these places on the surface of a finger, or enters the body in another way. Ebola is more infectious and more deadly than flu virus, in that less of it initially will cause explosive response in the human body.
- Watch Your Fingers. Mayo Clinic: "The 10 worst sources of contagion are our fingers." Wash them a lot. Ordinary soap acts on the oily surface of a virus, which is nice.
- Toilets. They spread virus. Virus departs the body in feces. Always close the lid of a toilet before flushing it. Disinfect toilet surfaces touched by hands. Many toilets launch water droplets into the air, which you've felt on your butt in many places. So disinfect the floor around them, too.

Sick-Room

- Patient Treatment. Americans assume that magic medicines will simply be there for us. Well, in this case they probably won't. Pandemic flu vaccine won't be available for 6 months to a year, and there is no completely-tested vaccine for Ebola. Furthermore, unless you're a medical professional or government official you're probably going to be way back in the line for any useful medicine--probably after the pandemic has run around the world and done most of its killing. We'll be way back in that line, and simply can't count on it. For a flu pandemic, ask a doctor to consider a *Tamiflu* antivirus prescription immediately at onset of pandemic or onset of symptoms, if you can get near a doctor, which is problematic at best. *Tamiflu* is in short supply even in medical channels, and is no panacea: it may not affect a particular virus. It has serious side effects for some people. We may never be allowed to get near *Tamiflu*, either. So we're down to rest and fluids, just like "normal" flu except that a pandemic one can kill you. Same with the Ebola virus, except worse: it has killed roughly 60% of humans infected. Do not exercise or "fight it" at onset, expending energy your body needs to fight the virus. Speaking of treatment in the face of a deadly pandemic, be aware that, to protect themselves and their families, many medical professionals likely will simply abandon their jobs in droves.
- **Dehydration is the Greatest Patient Threat You Can Help With**. Oral Rehydration Solution (ORS) for patients who cannot eat: 1 quart water, 2 tablespoons sugar, ¼ teaspoon table salt, 1/8 teaspoon baking soda. For potassium, add orange juice or offer small bits of banana. If desired, flavor with lemon juice. If patient is too sick to drink, administer to the mouth in drops with an eye-dropper. No pee, high pulse (>80) = dehydrated. Keep pushing liquids--ideally one cup per waking hour. With Ebola, being so violent, medics use an IV to push the fluids.
- Fever. Fever helps inhibit the virus, but dehydrates quickly. Giving acetaminophen (Tylenol) and/or aspirin (Ibuprofen, Motrin) may make the patient feel better, but may slow the body's defenses. However, if needed to allow sleep, then use them, as sleep is important to defense, but give them with 2-3-hour separation between full doses of the two medicines to minimize risk of a bad reaction. Try a cool cloth to the forehead for comforting. High fever over 104 F can do damage, and may be treated with full-dose acetaminophen and Ibuprofen, again with 2-3-hour separation between the two medicines, plus a tepid-water sponge bath. Ask doctor if you can get near one, else you must assess the risk here.
- Diarrhea. More liquid loss. Clear liquids only (ORS, juice, *Jell-O*, *Gatorade*, *7-Up*, tea). Then crackers, plain white bread, white rice, skinless potato. Then fruit, chicken noodle soup.
- Designated Sick-Room. For us, the downstairs guest room, with connecting bath.

- Air Flow. Close sick-room doors. Block forced-air vents in sick-room with duct tape. Use plug-in electric heater, but keep room cool (limit air circulation, reduce fever). Well family member (if we're so lucky) sleeps upstairs and keeps temperature higher there, so airborne virus doesn't rise from sick-room up the stairs. Every house is different--plan your own.
- Decon Line. Decon line outside closed sick-room door, with separate shoes for sick-room and for rest of house. Garbage bag for all out-going disposable eating/drinking utensils, outer garments. Bucket of disinfectant solution. Take as little as possible across that decon line, to minimize risk of carrying virus out. Remember: if all the capable care-givers in the house get infected and become immobile, everybody's at far greater risk of death. Don't get sloppy with this.

Death

- Think about what you will do if there is a pandemic death in the home. Mortuary, funeral and related services may be overwhelmed quickly. Caskets may disappear quickly, as in 1918. Modern society's legal and financial institutions will require a death certificate, but societal collapse may not allow for such niceties in mid-pandemic. Every family is unique. We live in the country, and just might be on our own out there, too, like our pioneer great grand-parents. A pick, a shovel, and a Bible. UK and Australia plan for mass burials. Not the Eckert family.

Life

- Surviving a pandemic infection makes you one of the most valuable people in the community. Go out and volunteer to become a care-giver. Different from the yet-uninfected, caring for the sick no longer threatens your life. Become part of the core that saves lives in the community--that brings the community back. You will never again have such an opportunity to help others.

"In the absence of a pandemic, almost any preparation will smack of alarmism. But if a pandemic does break out, nothing that has been done will be enough."
-- Tony Abbott, Australian Minister for Health

"Any community that fails to prepare with the expectation that the federal government will come to the rescue is tragically wrong."
-- HHS Secretary Michael Leavitt

"Self-management and self-reliance will be the cornerstone."
--President, American College of General Practitioners

Good websites: www.pandemicpractices.org https://www.intelink.gov/mypage/avianflu
www.pandemicflu.gov http://www.birdflu-manual.com/manual-contents.htm
http://www.cdc.gov/vhf/ebola/index.html

This personal family paper written at home by: Bill Eckert, billsueeckert@aol.com
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